Fodor's general claim: The special sciences (psychology, sociology, economics, etc.) are autonomous from physics -- their laws do not reduce to the laws of physics.

I. Two views about the unity of science

Generality of physics: All events which fall under the laws of any science are physical events and hence fall under the laws of physics.

Reductionism: There are natural kind predicates in an ideally completed physics which correspond to each natural kind predicate in an ideally completed special science.

Fodor: Reductionism is too strong for the purposes of the unity of science. The weaker doctrine, Generality of physics, will do if we just want to be "good token physicalists".

II. Characterizing Reductionism

A. Let the symbol $\Rightarrow$ be read as "causes" or "brings it about that," *S* for a predicate in a special science, and *P* for a predicate in a lower level (reducing) science, namely physics.[2]

- We want to know what it is for a law $S_1x \Rightarrow S_2y$ to reduce to a law $P_1x \Rightarrow P_2y$.

$$S_1x \quad \Rightarrow \quad S_2y$$
$$S_1x \quad \Leftrightarrow \quad P_1x$$
$$S_2y \quad \Leftrightarrow \quad P_2y$$
$$P_1x \quad \Rightarrow \quad P_2y$$

Bridge Laws connect predicates of special science with those of the reducing science.

B. What sort of connective is $\Leftrightarrow$?

- Fodor: If not treated as identity, then this kind of reductionism only gives us a weak version of physicalism. In particular, if treated as "if and only if" then dualism is consistent with this model and so reductionism wouldn't be vindicated.

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1 This is an excerpt from Fodor's *The Language of Thought* (Harvard 1975).
2 For this handout I will be using the $\Rightarrow$ symbol instead of Fodor's cryptic ----º

$\Leftrightarrow$ is best read as what Fodor calls *contingent event identity*:

$$S_1 x \quad \Leftrightarrow \quad P_1 x$$
$$=_{df}$$

Every event which consists of x satisfying S_1 is identical to
an event which consists of x satisfying P_1.

III. Sciences, Kind Predicates, Laws

A. Sciences are – minimally - individuated by their Predicates and their Laws (or counterfactual supporting generalizations). Events fall under a science S insofar as they satisfy S's predicates, which figure into the laws of S.

	Physics	**Psychology**	**Economics**
Kind Predicates	Velocity Mass Force Spin Photon ...	Belief Desire Perception Memory Plan ...	Monetary exchange Inflation Supply Demand Recession ...
Laws	• F=Ma • F= G (m1m2/r^2) • Nothing moves faster than light. • Receding light sources exhibit red-shift effects.	• DBA principle • By 10 months, infants develop the concept OBJECT • Perceptions that *a is F* produce the belief that *a is F*.	• Gresham's Law • Supply/Demand/Price

B. Some predicates do not pick out natural kinds. They don't carve nature at her joints. E.g,

- having been transported to a distance less than 3 miles of the Eiffel Tower
- having been raised by either wolves or dolphins
- being the occupant of a van down by the river
- being a stretch of road crossed over by Obama's 2nd car

IV. Event Identity and Natural Kinds

A. The same event can be described in various ways

- Consider the token event e of a glass shattering on a table at time t. Suppose the following descriptions are true of the glass:

    __ is a glass object at location l with mass m and density d
    __ is Granny's favorite object
    __ is the first object to be placed on that table

- The event e is identical to

    the shattering of a glass object at location l with mass m and density d
    $$=$$
    the shattering of Granny's favorite object
    $$=$$
    the shattering of the first object to be placed on the table

B. Not all descriptions of events are created equal

- If we want an illuminating explanation of why the glass shattered at time t, some descriptions will do better than others. In particular, describing the glass as "Granny's favorite object" doesn't provide any illumination -- *being Granny's favorite object* does not pick out a natural kind.

    (Consider the world in which Granny's favorite object is an iron sphere.)

C. Against Reductionism

If reductionism is true, then every natural kind is or is coextensive with, a *physical* kind. "This consequence is intolerable." Two interrelated reasons:

(i) We can make interesting generalizations about events whose physical descriptions have nothing in common.

◆ (Economics) Gresham's Law from economics is a generalization about *monetary exchanges.* But the realizations of token monetary exchanges are physically diverse.

monetary exchange

dollars, check-signing, sticks, computer blips, sea shells
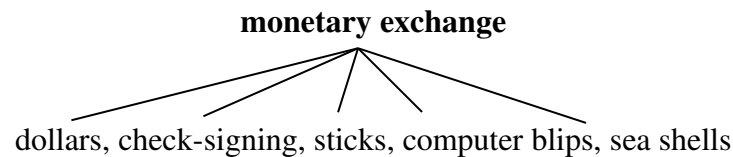
◆ (Psychology) An organism in *pain* will exhibit avoidance behavior. But token pains are realized in physically diverse physical structures.
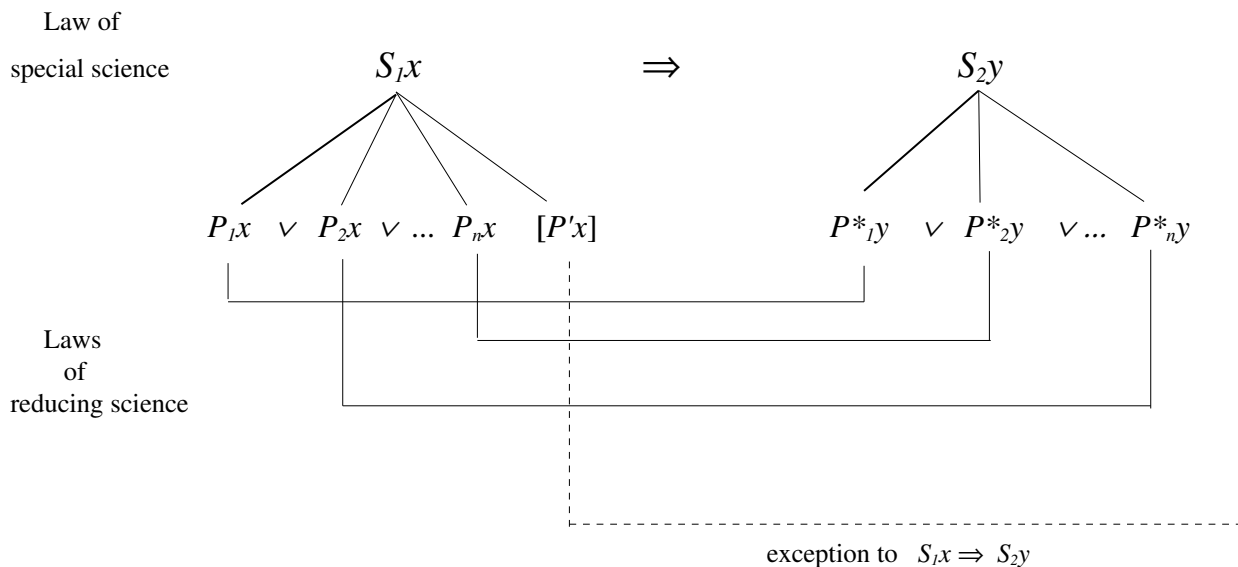
pain

Humans, Dogs, Octopuses, Martians, Robots(?)
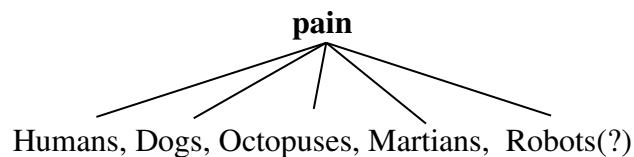
(ii) Special sciences are very much in the business of providing generalizations.
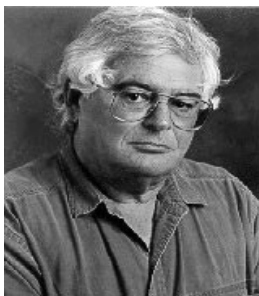
"There are departments of psychobiology or psychology and brain science in universities throughout the world whose very existence is an institutionalized gamble that such lawful coextensions can be found."

V. Fodor's model

Law of

special science $\qquad S_1x \qquad\qquad \Rightarrow \qquad\qquad S_2y$

$$P_1x \ \lor \ P_2x \ \lor \ ... \ P_nx \quad [P'x] \qquad\qquad P^*{}_1y \ \lor \ P^*{}_2y \ \lor ... \ P^*{}_ny$$

Laws
of
reducing science

exception to $\ S_1x \Rightarrow S_2y$

A. How to read the model

$S_1x \Rightarrow S_2y$: Object x satisfying predicate S_1 causes or brings about object y satisfying predicate S_2.
Bridge statement: All events consisting of object x satisfying predicate S_1 are identical to an event
  consisting of x satisfying P_1 or P_2 or ... P_n.
$P_1x \Rightarrow P_2y$: Object x satisfying predicate P_1 causes or brings about object y satisfying predicate P_2.

B. The upshot

Token physicalism without reductionism: Every psychological event is identical to
some physical event or other, even though psychological kinds are not reducible to physical
(/neurological) kinds.

C. A response

- Given that each disjunct of $P_1x \lor P_2x \lor ... \ P_nx$ picks out a natural kind, why not treat it as a
  natural kind and treat $(P_1x \ \lor \ P_2x \ \lor ... \ P_nx) \Rightarrow (P^*{}_1y \lor P^*{}_2y \lor ... \ P^*{}_ny)$ as a natural law?

  Fodor: "I think ... that it is a law that the irradiation of green plants by sunlight causes
  carbohydrate synthesis, and I think that it is a law that friction causes heat, but I do not think
  that it is a law that (either the irradiation of green plants by sunlight or friction) causes (either
  carbohydrate synthesis or heat)" (128).